

comparison to UAE (pregnancies: 3.44, 95%CI 1.18–10.03; live-births: 3.02, 95%CI 1.00–9.09). **CONCLUSIONS:** LUAO is less effective than UAE and MYO in the treatment of symptomatic fibroids for women who want to preserve their uterus. The choice between UAE and MYO should be based on individuals' short and long-term expectations.

### PIH3

#### META-ANALYSIS OF BCG VACCINE EFFICACY FOR INFANTS IN IRELAND

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**OBJECTIVES:** BCG vaccination policy is greatly debated. An important issue for countries using the vaccine is to try and estimate any influence it has on the tuberculosis (TB) incidence in their population. The aim of this study is to estimate the effectiveness of the BCG vaccine in infants in Ireland. **METHODS:** We searched PubMed and Embase for studies assessing a relative reduction in TB events after vaccination in infants. Studies meeting relevant inclusion and exclusion criteria were sought. Observational data from Ireland was combined with raw data from studies identified in the literature in a random-effects meta-analysis model to estimate the relative risk (RR) of vaccine efficacy against pulmonary TB, extra-pulmonary TB (EPTB), TB meningitis and TB deaths. **RESULTS:** Two meta-analyses were found. The first meta-analysis reviewed identified 5 randomised control trials and 11 case control studies against pulmonary TB (Trials 0.26 95% CI 0.17, 0.38; Cases 0.48 95% CI 0.37, 0.62) and TB deaths (Trials 0.35 95% CI 0.14, 0.88). The second meta-analysis identified a further 7 case-control studies and evaluated BCG efficacy against EPTB (0.23 95%CI 0.13, 0.42) and TB meningitis (0.27 95%CI 0.21, 0.33). Estimates from observational data from Ireland for pulmonary TB were (0.14, 95%CI 0.09, 0.20), EPTB (0.11, 95%CI 0.05, 0.21), TB meningitis (0.17, 95%CI 0.04, 0.75) and TB deaths (0.13, 95%CI 0.00, 0.63). Pooled RR estimates from Irish data and international estimates show a significant reduction in TB cases: Pulmonary TB: 0.26 (95% CI: 0.13, 0.54), EPTB: 0.16 (95%CI: 0.08, 0.34), TB meningitis: 0.27 (95%CI: 0.21, 0.34) and TB deaths: 0.33 (95%CI: 0.14, 0.81). **CONCLUSIONS:** This meta-analysis of local observational data with international trial data indicates that vaccination of infants with the BCG vaccine reduces the risk of pulmonary TB, EPTB, TB meningitis and TB deaths.

### PIH4

#### CO-ADMINISTRATION OF ANTIPSYCHOTICS AND ANTI-DEMENTIA DRUGS IN AUSTRIA

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**OBJECTIVES:** The use of antipsychotics for people with dementia is regarded as problematic, causing cerebrovascular side effects and increasing mortality. In some countries, health-policy makers have already addressed a need for action to reduce the prescription of antipsychotics in dementia. The main goal of the analysis is to determine the extent of co-medication of antipsychotics for patients with medically-treated dementia in Austria, stratified by age and sex. **METHODS:** Provided in a pseudonymised manner, the data comprise all filled prescriptions of cholinesterase inhibitors and memantine in the years 2011 and 2012 at the expense of the 13 major Austrian health insurance funds, covering more than 97% of the Austrian population. Additionally, antipsychotic medication of the involved patient pseudonyms is included, as well as age, sex and – where occurred – date of death. For the analysis, the overlapping time frame is relevant, i.e. when both substance groups were consumed. Descriptive statistics are used to capture the extent and variability of a co-medication of these two substance groups. **RESULTS:** Starting with 72,549 patients included in the data (66% female), 31,605 (43.6%) were concurrently being prescribed antipsychotics to their anti-dementia drugs. The median for the overlapping time frame is 294 days, for anti-dementia prescriptions it is eleven and for antipsychotics it is seven. Age is a factor for increasing antipsychotic medication. Considering demography, there are no remarkable differences between men and women. **CONCLUSIONS:** Our data demonstrate that the use of antipsychotics in dementia is notably common in Austria, with a high prevalence as well as a tendency to long-term use. The results reflect the prescription reality and can be used as a solid basis for discussions, possible actions and evaluations about antipsychotics in dementia in the Austrian health system.

### PIH6

#### ASSESSING PRODUCT SAFETY VIA PATIENT BASED ACTIVE SURVEILLANCE (AS): A STUDY IN 30.000 WOMEN USING HORMONE REPLACEMENT THERAPY (HRT)

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**OBJECTIVES:** The novel progestin drospirenone (DRSP) has antimineralocorticoid properties with potentially beneficial as well as unfavorable effects on cardiovascular outcomes compared to other progestins. A patient based AS study was set up to compare incidence rates of serious adverse events – in particular cardiovascular outcomes – in users of oral continuous combined preparations. **METHODS:** Prospective, controlled cohort study (2002-2011) with three arms: women using 1) DRSP/estradiol; 2) other oral continuous-combined HRT (occHRT); and 3) all other oral HRTs. The study population included women aged 40 or older in seven European countries starting or switching to an oral HRT at time of inclusion in the study. Outcomes were collected from the patients and validated by the treating physicians. A multifaceted 4-level follow-up procedure was to ensure low loss to follow-up rates. The analysis is based on Cox regression models comparing the cohorts. **RESULTS:** A total of 30,597 users of oral HRT preparations – reflecting more than 101,000 WY of observation – were recruited by 1,052 centers. Incidence rates of DRSP/estradiol and low-dose occHRT for venous thromboembolic events were 17.5 (95% CI: 11.2-26.0) and 18.2 (95% CI: 11.9-26.6) per 10,000 WY, respectively. The respective incidence rates for arterial thromboembolism were 10.9 (95% CI: 6.1-18.0) and 29.8 (95% CI: 24.1-36.4) per 10,000 WY with a hazard ratio adjusted for age, BMI, hypertension, region, family history of fatal ATE, diabetes, user status

of 0.5 (95%CI: 0.3-0.8) for DRSP/estradiol vs. other occHRT. **CONCLUSIONS:** Results indicate a good safety profile with respect to cardiovascular risk for DRSP/estradiol. Serious cardiovascular events occur less frequently in DRSP/estradiol users compared to users of other continuous-combined HRT. This specific AS approach proved to be a successful approach with high long term follow-up success and high validity of safety results.

### INDIVIDUAL'S HEALTH – Cost Studies

#### PIH7

#### BUDGET IMPACT OF HPV16/18 GENOTYPING TESTS FOR THE MANAGEMENT OF NON-CONCORDANT COTESTING CERVICAL CANCER SCREENING RESULTS: A UNITED STATES PAYER PERSPECTIVE

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**OBJECTIVES:** To assess the impact of managing women with high-risk HPV positive and Pap negative results (hrHPV+/Pap-) attending cervical cancer (CxCa) screening with a Pap and HPV test (co-testing). The strategies tested reflect different options available if a hrHPV test versus a hrHPV including 16/18 genotyping (3-in-1 test) is used upon initial screen. **METHODS:** A budget-impact model was developed, from a US payer perspective. Data from the ATHENA (Addressing The Need for Advanced HPV Diagnostics) trial and published literature were used to populate the model. The scenarios tested include repeat co-testing in 12 months, reflex genotyping HPV16/18, or routine co-testing with genotyping results already available from a 3-in-1 test for triage to colposcopy. The model examined the annual cost of testing and treatment for cervical intraepithelial neoplasia grade 2 or worse ( $\geq$ CIN2) and the cost of patients loss-to-follow-up. For a hypothetical population of women between ages 30 to 69, it assumes 48.5% were co-tested within the CxCa screening program every 3 years. Of those, 6.7% of women receive hrHPV+/Pap- results. Test performance was modeled as equivalent for both genotyping scenarios. **RESULTS:** In the hrHPV+/Pap- population, the cost of  $\geq$ CIN2 cases detected and treated for each testing strategy and the rate of progression to invasive CxCa per 10,000 hrHPV+/Pap- results was \$10,530/9.2 (repeat co-testing at 12 months), \$8,500/2.6 (reflex HPV16/18) and \$7,278/2.6 (routine co-testing with 3-in-1 test). Using HPV16/18 genotyping to manage discordant co-testing results increased  $\geq$ CIN2 cases detected and prevented disease progression. Compared to other HPV tests that require reflex genotyping, screening with a 3-in-1 test reduced the cost of follow-up by 17% annually. **CONCLUSIONS:** Genotyping for HPV 16/18 improved the detection of  $\geq$ CIN2 cases over repeat co-testing in 12 months; moreover, compared to other HPV testing strategies, the 3-in-1 test reduced costs and may be a prudent screening alternative.

#### PIH8

#### ECONOMIC IMPACT OF THE USE OF AN ABSORBABLE ADHESION BARRIER IN PREVENTING ADHESIONS FOLLOWING OPEN GYNECOLOGIC SURGERIES

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**OBJECTIVES:** Abdominal adhesions are common after gynecologic surgeries, often resulting in complications such as bowel obstruction and chronic pain, which may lead to increased length of stay and more frequent readmissions. GYNECARE INTERCEED® Absorbable Adhesion Barrier is associated with fewer adhesion-related outcomes compared to surgeries without an adhesion-barrier. This analysis assesses the budget impact of GYNECARE INTERCEED® for reducing the incidence of postoperative adhesions in open surgical gynecologic procedures. **METHODS:** A model was constructed to evaluate the budget impact to hospitals of adopting GYNECARE INTERCEED® for women undergoing open surgical gynecologic procedures. C-section surgery, hysterectomy, myomectomy, ovarian surgery, tubal surgery, and endometriosis surgery were modeled with and without the use of GYNECARE INTERCEED®. Incremental GYNECARE INTERCEED® material costs, medical costs arising from complications, and adhesion-related readmissions were considered. GYNECARE INTERCEED® use was assumed in 50% of all procedures. Budget impact was reported over a 3-year period from a US hospital perspective (US\$2013). **RESULTS:** Assuming 100 gynecologic surgeries of each type and an average of one GYNECARE INTERCEED® sheet per surgery, a net savings of \$439,975 with GYNECARE INTERCEED® over 3 years is estimated. GYNECARE INTERCEED® use resulted in 80 fewer patient cases developing adhesions. Although the use of GYNECARE INTERCEED® added \$91,500 in material costs, this was completely offset by the reduction in complication costs (\$230,766 savings) and fewer adhesion-related readmissions (\$300,709 savings). By preventing adhesion-related complications, GYNECARE INTERCEED® prevented over 206 additional hospital days for patients. **CONCLUSIONS:** This analysis represents the first economic assessment of GYNECARE INTERCEED® use in open gynecologic surgeries that incorporates the cost of the adhesion barrier, complications, and readmissions. Adoption of GYNECARE INTERCEED® absorbable adhesion barrier for appropriate gynecologic surgeries would likely result in significant savings for hospitals which would largely be driven by clinical patient benefits in terms of fewer complications and adhesion-related readmissions.

#### PIH9

#### BUDGET IMPACT OF DIENOGEST IN TREATING ENDOMETRIOSIS ASSOCIATED PELVIC PAIN IN BRAZIL: A PUBLIC PERSPECTIVE ANALYSIS

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**OBJECTIVES:** Evaluate the budget impact to the public health care system in Brazil after introducing dienogest (2 mg) as a treatment option in detriment of GnRH analogues (GnRHa) for patients with endometriosis-associated pelvic pain (EAPP). **METHODS:** The analysis was conducted from the public perspective over a five-year time horizon. The budget impact model (BIM) specifically considered

women with EAPP. A recently cost-minimization (CM) model developed for EAPP provided the estimates of average treatment cost in Brazil based on local guidelines. This CM model compared different treatment pathways for women with EAPP and used a 50% improvement in pelvic pain as a definition of a treatment response. A patient flow was developed based on epidemiological and demographical data. Based on market uptake assumptions, results from the CM model and the patient flow, the BIM estimated the incremental budget impact after adopting dienogest. The model assumed that during the first year, 6.76% of EAPP patients receive dienogest in detriment of GnRH $\alpha$ . After five years, it was assumed that dienogest would capture 30% of the GnRH $\alpha$  market in EAPP. **RESULTS:** Based on the patient flow developed, approximately 0.52% of the population were estimated to be diagnosed with EAPP and receiving treatment with GnRH $\alpha$ . In the year after introduction of dienogest, the overall budget used to treat EAPP was estimated to decrease by up to 2.98% with the budget saving estimated to increase to around 12.98% by Year 5. **CONCLUSIONS:** This analysis portends that the budgetary impact of adding dienogest to the public health care system in Brazil, in detriment of the GnRH $\alpha$ , result in a budgetary cost saving alternative.

#### PIH10

##### HOW MUCH DOES BENIGN PROSTATIC HYPERPLASIA COST? A BUDGET IMPACT ANALYSIS ON ITALIAN PATIENTS TREATED WITH 5 $\alpha$ -REDUCTASE INHIBITORS

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**OBJECTIVES:** Second-line pharmacological therapy for benign prostatic hyperplasia (BPH) includes 5 $\alpha$ -reductase inhibitors (SARIs, dutasteride and finasteride). Aim of this study was the evaluation of the budget impact related to the variation in dutasteride and finasteride prescribing trends. **METHODS:** Target population is the number of Italian BPH-patients, age  $\geq$  40 years, treated with dutasteride or finasteride. The BPH-patients management was modeled on a dynamic cohort for 4-years. Epidemiological input data were elaborated from an observational study on pharmaceutical prescription data of Italian BPH-patients; hospitalization rates were taken from a cohort study investigating BPH-related surgical and not surgical hospitalizations. Costs were calculated as average of Italian DRGs weighted for BPH-related procedure frequency. Current Italian prescription shares of dutasteride and finasteride were compared with a 20% shift of prescriptions from dutasteride to finasteride (Scenario A) and a 20% shift of prescription from finasteride to dutasteride (Scenario B). **RESULTS:** According to current prescribing trends, 372,078 hospitalizations for BPH are expected in 4 years. Mean annual cost for BPH-patients management results in 355 million €. Hospitalization cost is the main driver (228 million €/year) while pharmacological therapy accounts for 35% of the total cost (126 million Euro/year). Scenario A: additional 11,485 hospitalizations related with BPH occur in 4 years; these lead to an increase in NHS cost only slightly offset by the savings in drugs acquisition cost: -0,08% savings on NHS budget (-0,28 million €/year) Scenario B: the cost of drugs increases of 5% (+6 million €/year) and prevents 9,920 hospitalizations in 4 years; the net budget impact of scenario B is +0,08% increase in cost (+0,27 million €/year). **CONCLUSIONS:** The shift of prescription from dutasteride to finasteride leads to modest savings on NHS Budget while the shift from finasteride to dutasteride offsets the majority of increase in drug budget improving the outcome in patients.

#### PIH12

##### COSTS OF ALTERNATIVE METHODS OF CHILD DELIVERY IN SERBIA

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**OBJECTIVES:** Different types of labour need different resources. Therefore, different costs could be expected. Objectives of this study were to determine if significant differences in costs of different type of labour and methods of delivery exist and to determine factors related to estimated costs. The costs of spontaneous labour with vaginal delivery (SVD), induced labour with vaginal delivery (IVD), and planned C-section (CS) without labour were estimated. **METHODS:** Retrospective, population-based study was conducted for the period January – December, 2010. Health Insurance Fund of Republic of Serbia (HIFRS) database was used as a data source. Direct medical costs of mother/newborn pair were estimated. Costs were observed from the perspective of HIFRS and expressed in European Monetary Unit (EUR). **RESULTS:** A total of 99 women were selected for the study sample; average age was 30.55 $\pm$ 5.42 years. The majority of women (46.5%) had SVD, 28.3% had IVD and 25.2% had CS. Women with CS were longer hospitalized compared to women with SVD and IVD (8.52 $\pm$ 4.74 vs. 4.59 $\pm$ 2.89 and 5.04 $\pm$ 3.01 days, respectively,  $p < 0.05$ ). Newborns after CS were longer hospitalized compared to newborns after SVD and IVD (5.76 $\pm$ 2.20 vs. 4.0 $\pm$ 2.07 ( $p < 0.05$ ) and 5.14 $\pm$ 3.39 ( $p > 0.05$ )). Majority of women (88.0%) and children (80.0%) after CS were hospitalized at semi-intensive and/or intensive care units. The average costs of delivery, regardless of the method, were 417.02 $\pm$ 284.14 EUR. The costs of C-section were higher compare to SVD (640.18 $\pm$ 240.04 vs. 243.27 $\pm$ 131.70 EUR,  $p < 0.05$ ) and IVD (640.18 $\pm$ 240.04 vs. 497.10 $\pm$ 327.91 EUR,  $p > 0.05$ ). **CONCLUSIONS:** The highest costs of labour in Serbia were costs of planned CS. Longer maternal/newborns hospital stay and more frequent hospitalization at semi-intensive and/or intensive care units after CS were leading factors of estimated high costs. Considering high costs of CS, it is necessary to review such clinical practice for the purpose of optimizing the use of resources.

#### PIH13

##### COST BURDEN OF ROTAVIRUS GASTRO-ENTERITIS REQUIRING HOSPITALIZATIONS IN THE CZECH REPUBLIC AND IN SLOVAKIA

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**OBJECTIVES:** Rotavirus (RV) is the most frequent cause of severe gastroenteritis frequently requiring hospitalization. RV is responsible for  $> 1/2$  of all hospital stays for acute gastroenteritis. The objective was to estimate the burden of community acquired rotavirus gastro-enteritis requiring hospitalization (CRVGE) in children  $\leq$  5 years old in Czech Republic (CR) and Slovakia (SK). **METHODS:** Multi-center, retrospective patient chart review was conducted in both pediatric and infection disease settings in CR (n=109) and SK (n=115). Resource use analysis including length of hospital stay and tests performed were evaluated. Patients requiring rehydration, complications and comorbidities were considered. Direct cost from payer's perspective were retrieved from official DRG lists (CR) and fixed hospitalization cost rates per case (SK). Micro-costing was done in parallel based on the resource use data. **RESULTS:** Mean length of hospital stay in CR and SK was 3.9 (SD 1.9) and 4.1 days (SD 1.7) respectively. Prevalent diagnostic tests used were latex agglutination 44.0% (CR) and immunochromatography 92% (SK). Rehydration was required in 84.4% (CR) and 97% (SK) of cases. Comorbidities were reported in 24.8% (CR) and 27% (SK); complications in 10.1% (CR) and 7.8% (SK). The national list-based reimbursement per hospitalized CRVGE is € 370-645 (CR) and € 561 (SK). The calculated average total costs, including treatment prior to, and after admission, were € 462 (CR) and € 583 (SK). The major cost item was the hospital stay with € 391 (CR) and € 540 (SK). Costs for tests and drugs during hospitalization were € 30 (CR) and € 25 (SK). The costs of pre and post-hospitalization care were € 20 (CR) and € 13 (SK). **CONCLUSIONS:** Although the length of hospitalization in both countries is similar costs seem to be substantially lower in CR, possibly as a result of recently launched DRG system. Common complications and comorbidities account for 30% of average hospital costs.

#### PIH14

##### USE OF ANTENATAL CORTICOSTEROIDS LOWERS HOSPITALIZATION COSTS RELATED TO PREMATURITY

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**OBJECTIVES:** According to WHO the use of antenatal corticosteroids (CEA) in pregnant women at risk of preterm birth  $< 34$  weeks can prevent thousands of preterm neonates (PN) deaths. The impact of the use of CEA in hospital costs in developing countries is not known. Our objective was to compare morbidity and hospital costs of PN whose mothers received or not CEA. **METHODS:** Analysis of PN medical records with gestational age 26-32 weeks born from Jan/2006-Dez/2009 in a tertiary, public and university hospital. We excluded infants with malformations. Maternal characteristics, hospital neonatal morbidity, use and doses of CEA and all used resources (tests, medications and procedures) were collected. Costs were estimated in Brazilian Reais, from the hospital perspective. **RESULTS:** Of 211 PN, 170 received at least one dose of CEA to 6 hours before delivery (G1) and 41 did not (G2). The groups had similar characteristics but G1 had more male infants ( $p < 0.05$ ) and cesarean sections ( $p < 0.00$ ). Morbidity: G2 needed more advanced resuscitation (16.5% vs 34%,  $p = 0.01$ ), experienced more intraventricular hemorrhage III / IV (7.6% vs. 22%,  $p < 0.00$ ) and retinopathy of prematurity (12.4% vs. 24.4%,  $p = 0.05$ ). Resource use: G1 consumed less mechanical ventilation days (5.3 vs 10.6,  $p = 0.04$ ) and oxygen days (10.7 vs 17,  $p = 0.02$ ); the number of NICU and Intermediate Care Nursery days were respectively (19.6 vs 27.5,  $p = 0.07$ ) and (24 vs 29.5 days,  $p = 0.14$ ); there was no difference concerning use of CPAP ( $p = 0.07$ ) and surfactant ( $p = 0.06$ ). The average cost of hospitalization per patient was BRL 18,409 in G1 and BRL 24,090 in G2 ( $p = 0.03$ ). **CONCLUSIONS:** The CEA is a simple measure, which helps to reduce PN morbidity and utilization of health care resources, reducing hospital costs.

#### PIH15

##### EXAMINING THE BURDEN OF ILLNESS OF THE UNITED STATES VETERAN PATIENTS DIAGNOSED WITH ALZHEIMER'S DISEASE

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**OBJECTIVES:** To examine the burden of illness of patients diagnosed with Alzheimer's disease (AD) in the U.S. veteran population. **METHODS:** A retrospective database analysis was performed using the Veterans Health Administration (VHA) Medical SAS datasets from October 1, 2008 through September 30, 2012. Patients diagnosed with AD were identified using International Classification of Disease 9th Revision Clinical Modification (ICD-9-CM) diagnosis code 331.0. The first diagnosis date was designated as the index date. A comparator group was created as well by identifying patients without an AD diagnosis but with the same age, region, gender, index year, and matching Charlson Comorbidity Index (CCI). The index date for the comparator group was randomly chosen to reduce the selection bias. A 1-year continuous health plan enrollment was required before and after the index date for both groups. One-to-one propensity score matching was used to compare the health care costs and utilizations during the follow-up period between the disease and comparator groups. **RESULTS:** A total of 68,856 patients were included in the AD and comparison cohorts. After 1:1 matching, a total of 24,542 of patients were matched from each group, and the baseline characteristics were proportionate. The AD cohort had higher percentages of inpatient (18.46% vs. 2.06%,  $p < 0.01$ ), emergency room (15.80% vs. 4.31%,  $p < 0.01$ ), physician office (98.17% vs. 58.18%,  $p < 0.01$ ), outpatient (98.30% vs. 58.92,  $p < 0.01$ ), and pharmacy visits (84.89% vs. 61.78%,  $p < 0.01$ ). AD patients also incurred higher inpatient (\$7,416 vs. \$636,  $p < 0.01$ ), emergency room (\$150 vs. \$41,  $p < 0.01$ ), physician office (\$2,752 vs. \$1,155,  $p < 0.01$ ), outpatient visits (\$3,086 vs. \$1,300) and pharmacy costs (\$774 vs. \$350,  $p < 0.01$ ) compared to patients without AD. **CONCLUSIONS:** In this study, AD was associated with higher health care resource utilization and a significantly higher economic burden.

#### PIH17

##### A COST OF A CHILDBIRTH WITH IN VITRO FERTILIZATION IN POLAND

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